DOCUMENT RESUME

ED 407 600 CE 074 079

AUTHOR Klein, Steven G.

TITLE Employer Incentives to Participate in a Comprehensive School-to-Work Transition Program.

INSTITUTION MPR Associates, Berkeley, CA.

SPONS AGENCY National Assessment of Vocational Education (ED), Washington, DC.
PUB DATE 94
NOTE 44p.
PUB TYPE Reports - Evaluative (142)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Cost Effectiveness; *Education Work Relationship; *Employer Attitudes; Employment Practices; Incentives; Institutional Cooperation; *On the Job Training; Policy Formation; Public Policy; *School Business Relationship; Secondary Education; *Work Experience Programs

ABSTRACT

This report evaluated economic incentives for employer participation in a comprehensive school-to-work (STW) initiative. In general, the business, economic, and educational literature emphasizes quantifying the fiscal benefits of employer-sponsored training, although only qualitative outcomes are available for some programs. The literature provides little insight, however, since analysis is hampered by the absence of a coherent empirical literature and the inconsistent quality of research. Some evidence shows that STW programs may provide employers with some economic benefits, such as positive public relations and name recognition, reduced costs of identifying and screening high productivity workers, and increased profits from hiring skilled workers. Program startup and maintenance can be expensive, however, and firms may incur significant costs from program participation. Because employer-sponsored training has been used for centuries in many European countries to prepare youth for labor market entry, analysis of successful international models suggests a number of market-based strategies that may be adapted for use in the U.S. marketplace. Incentives include the following: (1) structuring programs to provide incentives for employers to train; (2) creating a national infrastructure to support planning and oversight of training partnerships; (3) adopting reduced student training wages in conjunction with skill certification; and (4) offering direct wage or indirect tax subsidies to employers. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 407 600

Employer Incentives to Participate in a Comprehensive School-to-Work Transition Program

Paper prepared for the
National Assessment of Vocational Educationl,
U.S. Department of Education
1994

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Steven G. Klein, Ph.D.
MPR Associates, Inc.
2150 Shattuck Avenue, Suite 800
Berkeley, CA 94704
510-849-4942

CE074079

BEST COPY AVAILABLE

Table of Contents

Introduction 1

Empirical Evidence of Economic Incentives 2
- Employer Benefits 2
  - *Affect on Business Climate* 3
  - *Impact on Organizational Efficiency* 6
  - *Cost of Program Participation* 12
- School and Student Issues 17

Types of Involvement Available to Employers 20
- Indirect Employer Participation 20
- Direct Employer Participation 22

Policies to Support STW Programs 24
- Models of Employer Training 27

Conclusion 32

Bibliography 34

Abstract

This paper evaluates economic incentives for employer participation in a comprehensive School-to-Work (STW) initiative. Opening with a review of the relevant business, economic and educational literature, its emphasis is on quantifying the fiscal benefits of employer-sponsored training. Where lack of quantifiable economic data precludes analysis, the paper summarizes qualitative outcomes associated with program participation. After providing a brief overview of existing modes of employer involvement, the paper closes with a discussion of feasible market-based policies to encourage employer participation in a STW initiative. Strengths and weaknesses underlying each option are presented, and common themes identified, in deriving a set of policy recommendations to foster business involvement.

Although conclusive quantitative data is lacking, there is general agreement that STW programs may provide employers with economic benefits. These include: positive public relations and name recognition, reduced costs of screening workers, and increased profits from hiring skilled workers. Program startup and maintenance can be expensive, however, and firms may incur significant costs from participation. As such, promising market-based strategies must be developed that allow students to equal or offset their wage, training, and supervision costs, if STW programs are to spread throughout the business community.

Introduction

This paper evaluates economic incentives for employer participation in a comprehensive School-to-Work (STW) initiative. Opening with a review of the relevant business, economic and educational literature, its emphasis is on quantifying the fiscal benefits of employer-sponsored training. This task is complicated by a number of flaws in reported studies, which include:

- Absence of a coherent empirical literature,
- Primarily descriptive analyses of quantitative data,
- Small experimental samples without matched comparison groups,
- Selection bias in surveys of student and employer participants,
- Inconsistent interpretation of evaluation and training standards, and
- Subjective reporting of program outcomes.

Where lack of quantifiable economic data precludes analysis, the paper summarizes qualitative outcomes associated with program participation. Unfortunately, these descriptions of employer benefits rely on research which is often anecdotal and unsubstantiated, and reflects the generally poor quality of empirical work which has until recently characterized the field. For this reason, care should be taken in generalizing from study findings.

The paper shifts, in Section 2, to provide a brief overview of employer involvement in vocational education. Indirect and direct models of business participation are presented, along with a general description of distinguishing program features. Where data permit, rates of student and employer participation are also included.

The final section identifies feasible market-based policies to encourage employer participation in a STW initiative. Analyzing successful international models of employer training, the paper extracts promising cost-effective strategies which may be adapted for use in the American marketplace. Strengths and weaknesses underlying each option are presented, and common themes identified, in deriving a set of policy recommendations to foster business involvement. Recognizing the potential for employer "poaching" of trained workers, particular emphasis is placed on identifying political and market solutions to the free rider problem

Section 1

What is the Empirical Evidence of Economic Incentives and Disincentives of School-to-Work Programs?

This section reviews the economic literature on employer involvement in secondary and postsecondary STW transition programs. Intended to quantify the potential incentives and disincentives for employer participation, the paper documents market outcomes using hard economic theory and credible empirical evidence. Recognizing that consequences may extend beyond the private sector, analysis encompasses three points of view: employers, schools and students. The objective of this exercise is to provide a general understanding of the benefits and costs of employer-sponsored job training, and lay a foundation upon which later discussions may be based.

I. EMPLOYER BENEFITS

A review of the recent business, economic, and educational literature identified twenty-three studies of American employer involvement in secondary and postsecondary work-experience programs. Detailing research conducted between 1976 and 1993, collected papers provide quantitative and qualitative data from more than 2,200 public and private sector firms. Of these studies, slightly more than one-half (12) focus on the impact of cooperative (co-op) work experience programs on employers and students. This bias reflects both the long history of co-op—programs were first funded under the Smith-Hughes Act of 1917—as well as the relatively large number (estimated at 430,000) of students participating. Remaining studies examine more recent school-to-work initiatives, including: paid and unpaid industry internships, business-school academy partnerships, and youth apprenticeship programs.

Surprising little has been written on employer incentives to participate in STW transition programs. In the case of more recent training models, such as Tech-Prep and youth apprenticeship, a dearth of scholarship may simply reflect program infancy. Funds for most demonstration programs were first committed in 1990, meaning that preliminary program findings are only now being released. It is more difficult, however, to explain the lack of recent research on more venerable programs, such as co-op, in which thousands of

employers annually participate. Stern, et. al. (1993) suggest that underevaluation may be traced, in part, to the termination of federal Perkins assistance to secondary co-op programs in the early 1980s.

These caveats not withstanding, perhaps the most plausible explanation for a lack of empirical work is that until recently, few researchers had justification to study the economics of firm-based training. Educational policymaking of the eighties focused public attention on declining academic achievement; as such, much of the literature on STW transition emphasizes student outcomes and their relationship to curricular reform and school accountability. A thriving private sector economy also diverted attention from issues of cost-efficiency. The current economic downturn, which has introduced such terms as corporate reorganization and downsizing to the public conscience, has only recently driven researchers to address the economics of training from a business perspective.

Employer incentives for participating in a national STW transition initiative may be generalized into three areas of concern: (1) Effects on Business Climate, (2) Impact on Organizational Efficiency, and (3) Cost of Program Participation. The literature suggests that although firms may benefit from involvement, comprehensive STW transition programs can be expensive to develop, and in some cases substantial business investment may be required before any savings are realized.

A. EFFECT ON BUSINESS CLIMATE

1. Classical economic theory and empirical studies suggest that firms have little incentive to donate resources in support of a new STW initiative

Neoclassical economic theory suggests that the incentive for profit-maximizing firms to sponsor training is nearly indistinguishable from charitable giving when students' productivity fails to offset their cost to the firm. Here business participation can be rationalized by examining employers' utility of profit motivation. Firms deriving some benefit from investing in general student skill-training will donate services, in the form of wages, supervision and training, up to the point that their marginal productivity of giving equals their marginal cost (Dorfman and Steiner, 1954).

The assumption underlying this model is that employers' contribution to general training hinges upon their capacity to benefit from charitable investment. For example,

firms may donate training resources for STW programs if such support increases the long-run supply of labor, which in turn leads to lowers wages. Alternatively, firms might participate if such action creates a favorable business climate which insulates them from unfavorable regulatory policies, such as a federal training tax (Navarro, 1988). If program participation is not mandatory, however, conventional theory predicts that firms will reduce their charitable contribution if some employers shirk their responsibility to train. Free riders, who induce recently trained workers to leave their firm, reduce the profitability of charitable contributions to all firms by preventing employers from recapturing their training investment. This in turn leads firms to reduce their overall contribution to STW programs, ultimately resulting in an underprovision of general employer-sponsored training (Lynch, 1992). Permitting employers to offer firm-specific training could potentially offset the free rider dilemma, but would not be in keeping with the objectives of a national STW policy.

If the neoclassical assumption of profit maximization is relaxed, philanthropy may lead employers to participate in a STW initiative in the absence of any tangible short or long-run benefit. In this model, corporate citizenship causes employers to offer training because it is recognized as inherently good for youth and society. Bailey (1993) suggests that while such altruistic externalities have been a primary motivation for corporate involvement in past "adopt-a-school" efforts, altruism alone will not support a national training initiative. Most employers participating in industry-school collaborations agree, citing civic responsibility as only one of a number of contributing factors for their involvement. Employers in Cornell University's Youth Apprenticeship Demonstration Project, for instance, emphasize corporate self-interest and concern about regional work-force quality in addition to their civic ideals (Hamilton and Hamilton 1993). Sufficient to encourage a small number of firms to participate, corporate philanthropy by itself will neither motivate widespread industry involvement, nor provide enough training slots for youth among participating industries.

2. Publicizing business participation in STW programs may permit firms to recapture a portion of their investment; however, the value of this return remains unquantified, and likely varies with industry and employer.

Reputation is valued in the marketplace. To generate positive press, firms often sponsor local events and activities in the hopes of capitalizing on corporate goodwill

engendered within the community. Such investments include contributions to public radio and television, sponsorship of local athletic teams, and participation in community events. Returns are realized to the extent business participation shifts or decreases the elasticity of demand for a firm's product or services (Dorfman and Steiner, 1954).

Collaborating with schools to offer work-experience training is recognized by employers as a potential means of strengthening public relations. In a survey of approximately 250 co-op student employers, Deane, Frankel, and Cohen (1978) found that a majority of firms rated co-op participation as very important (53.2%) or somewhat important (31.6%) in improving public relations. They suggest that this indicates that the public looks somewhat favorably on co-op training, and that this view is transmitted to employers. Similarly, in a survey of nine business-school partnerships conducted by Public/Private Ventures (1987), corporate participants reported anticipating long-run benefits from improved public relations. Firms with high reliance on citizen goodwill particularly valued media coverage and press releases which publicized their affiliation.

Employer participation may also be used to generate name recognition among potential business clients. For example, for over 12 years Security Pacific Corporation[1], in partnership with over 200 California school districts, has offered entry-level job skill training to more than 4,500 students. Although program participation more than outnumbers corporate job openings, training is recognized as a means of developing positive relationships with potential bank customers (Jasso, 1988). Not all firms, however, may benefit from publicizing their participation in such training partnerships. Manufacturers and suppliers with indirect consumer contacts may fail to realize economic returns, particularly if firms' purchasing decisions are made independent of suppliers' business image. Additionally, since it is not clear that the return from publicity is proportional to the number of students employed, businesses may have incentive to offer no more than a limited number of positions.

[1]In the early 1990s Security Pacific was taken over by Bank America, which currently sponsors such training.

B. IMPACT ON ORGANIZATIONAL EFFICIENCY

> We're not doing this for civic responsibility. There are always benefits that come out of these programs, but we're doing it for purely selfish reasons...The schools are not producing a product we can use.
> – American Airlines representative, Tulsa, Oklahoma

Facing a shortage of a critical input in the production process, most firms would attempt to contract with suppliers to guarantee a stable future supply. Given a shortage of qualified entry-level workers, one might expect firms to make similar commitments. Rosenbaum (1992) suggests that although businesses complain about a shortage of trained workers, and the generally poor preparation of students in schools, employers often avoid making commitments with schools because they fear that to do so would limit their flexibility to respond to changing market conditions.

There is considerable evidence to suggest that firms could benefit from training student workers. Unfortunately, much of this data fails to accurately quantify the impact on organizational efficiency from firm investment, because few employers ever calculate their economic return. The following section attempts to quantify the economic incentives and disincentives for employer participation in a STW transition based on the available empirical literature.

1. Employer-sponsored training may reduce recruitment costs and expand potential applicant pools

Firms may incur considerable expense in recruiting workers. According to Training Magazine, the estimated cost of filling a vacant position is 33 percent of the worker's total annual salary. Much of this expense going toward advertising the job opening, screening, transporting and interviewing applicants, and reimbursing lost productivity of hiring supervisors. Applying this guideline to the private sector, Herchenroether (date unknown) found that voluntary turnover at Aetna Insurance cost the firm more than $100 million in 1989. Of these costs, $46.5 million were allocated for filling administrative and $55.0 million for filling technical staff positions

Employer-sponsored STW programs have the potential to reduce business recruitment costs. For example, six Boston-area hospitals participating in Project

ProTech's Health Care Youth Apprenticeship Program estimated their combined annual recruitment expenditures at between $5-6 million in 1991. Costs were generated by the need to advertise vacant positions, hire full-time human resource staff to recruit qualified applicants (as many as 20 at larger sites), and provide signing bonuses to workers at the time of hiring. After only one year of program participation, five of six hospital representatives reported that ProTech appeared to be a cost-effective investment for meeting their institution's future labor needs (Goldberger, 1993).

Actual recruitment savings from ProTech and similar demonstration programs have yet to be quantified. Although initial reports appear positive, the extent to which STW programs can reduce institutional recruiting needs, such as those described in Boston hospitals, may be limited. Employer outreach often targets professional and trained workers, rather than high school graduates who are less difficult to locate. Furthermore, recession and industry restructuring have created an oversupply of unskilled labor, reducing the need for extensive advertising and recruiting to fill vacant entry-level positions.

One successful attempt to quantify the cost of recruiting workers comes from the postsecondary co-op literature. Examining recruitment expenses incurred by nine private sector employers, Hayes and Travis (1976) found that average costs of recruiting co-op students ranged from 5 percent to 70 percent of the cost of hiring recent college graduates. Median average recruitment costs of co-op students were only $50 versus $800 for non-co-op candidates. Higher non-co-op expenses stemmed from the need to interview larger numbers of students, hire college recruiters to visit schools, reimburse candidates for travel expenses, and offset lost productivity from in-house interviews.

Although not quantified in other studies, employer use of STW transition programs to enhance worker recruitment is a common finding in the literature. A survey of 250 employers conducted by Deane, Frankel, and Cohen (1978) found that postsecondary cooperative programs offered employers a rich source of employees, with more than 87 percent of firms indicating participation as "very" or "somewhat important" in finding permanent employers. Reporting on survey results from 6 large corporate employers, Wooldridge (1976) found that postsecondary co-op programs facilitated recruiting of professional and college entry level students. Similarly, Winer and Kane (1983), in a survey of 241 public and private employers, found that cooperative and work experience

programs served as a powerful tool for recruiting secondary and postsecondary workers. Some researchers have gone so far as to suggest that employer participation in cooperative programs is driven by an underlying desire to recruit and retain students upon graduation (Weinstein and Wilson, 1985).

Perhaps the most recent and encompassing research on STW transition programs comes from a study conducted by the Institute for Educational Leadership. Surveying 196 employers participating in work-experience programs, Wills and Lynn (forthcoming) found that 82.4 percent of firms (117 of 142)[2] admitted using their partnership as a way to recruit entry-level employees. It appears that these recruiting efforts were often successful. Nearly 79 percent (106 of 135) of firms reported at least one partnership student remained with their organization after completing training, and a little more than 10 percent of firms reported hiring ten or more students. Similar recruitment results were reported by Security Pacific Corporation, which after conducting a 9-year study of its skill training program, noted that more than 65 percent of training graduates were employed in the company within a year of finishing their training (Jasso, 1988).

2. Employers may use training programs to identify and recruit workers with high productivity

Work-based training programs can improve hiring efficiency by assisting employers in identifying promising workers. Students participating in STW programs are typically screened by their schools prior to work placement. This filter can be highly effective in removing disruptive and unmotivated students from the workplace. Hayes (1978) found that of 61 secondary and postsecondary co-op student employers, 87 percent rated their experience with co-op work performances as either "excellent" or "good-very good," and 98 percent rated it "satisfactory or better." Similarly, of 196 firms participating in secondary work-experience programs, less than 5 percent of employers expressed some dissatisfaction with the quality of the student enrolled in their partnership (Wells and Lynn, forthcoming). Employers also report co-op students typically exhibit higher motivation, diligence, level of innovation and better overall job performance than non-co-op students (Perloff and Sussna, 1978). Higher levels of work motivation may be related, in part, to

[2]Firms to which questions did not apply (i.e. were coded -1) were excluded

the fact that students participating in work programs are held doubly accountable: students are evaluated by school supervisors as well as graded by employers on their work performance (GAO, 1991).

Perhaps one of the largest benefits to employers is that STW programs can assist employers in making more efficient hiring decisions. Work programs enable students to "signal" their productivity to employers in the work setting. Observations of actual on-the-job performance provides employers with more useful information than candidates' grade point averages, extra-curricular activities, résumés, or references. Although no benefit-cost studies of the efficiency of hiring decisions were identified in the literature, Wooldridge (1976) found that five of six large employers he studied specifically tailored their co-op programs to improve employee screening and selection.

3. Start-up costs for STW programs are often significant, and may require initial investment by employers

Development costs of STW programs are often a function of intensity and scope of employer involvement. Reports in the literature suggest that total start-up costs may range from a few hundred to a few hundred thousand dollars. A survey of fifteen STW programs[3] conducted by MDRC found that planning costs ranged from a low of $10,000 to $50,000 for basic planning and equipment purchase, to as high as $100,000 to $200,000 for more extensive project development. Other start-up costs reported in the literature include $180,000 for Cornell University's Youth Apprenticeship Demonstration Project, and $400,000 for Project ProTech's Health Care program in Boston.

Start-up costs of STW programs are funded by a combination of schools, employers, and third-party organizations. In some cases, employers and school officials donate time and resources to cover program funding, or school resources may be reallocated from existing vocational funds. In other cases, resources may come from federal planning grants, or assistance from private foundations. In these latter cases, employers are spared much of the program planning cost; however, employers may still invest significant time and resources to initiate involvement.

Startup negotiations between employers and school officials are typically conducted to establish mutually agreeable guidelines for program operation. To assess initial

[3]Programs studied included High School Career Academies, Occupational-Academic Clusters, Restructured Vocational Education, Tech Prep, and Youth Apprenticeship

coordination costs, Deane, Frankel, and Cohen (1978) surveyed 250 postsecondary co-op employers. They found that mean hours of employer negotiation exceeded five hours per participating school, with no statistical difference noted for firm size or student job category. This suggests that some fixed costs in setting-up work-experience programs may exist. Cooperative vocational education is not always geared toward skill certification; and as such, employers may have less need to coordinate training with classroom teachers. Postsecondary training may also require less initial oversight and administration than secondary programs, which must often conform to state-mandated attendance and graduation guidelines.

4. Ongoing employer investment ranges from $2,500 to $10,000 per participant per year, with costs directly related to the scope and intensity of program objectives.

Wage compensation for student trainees is one of the larger on-going expenses employers may incur. First-year students at the secondary level are typically hired at the minimum wage ($4.25/hr), and over time earn promotions based on workplace experience and school performance. Surveys of 16 Youth Apprenticeship Demonstration Projects and 39 work-based learning programs suggest some variation in pay among sites. Reported wages ranged from $4.25 to $8 per hour, with pay levels linked to industry of involvement and prevailing local wages (Goldberger, Kazis, and O'Flanagan, 1992; Hershey and Silverberg, 1993). In some cases, employers took advantage of an exemption in the Fair Labor Standards Act to pay students a stipend worth less than the minimum wage when calculated on an hourly basis.

Attempts to quantify the total cost of program participation provides a range of figures. Annual estimates include:

- German Apprenticeship System
  - $ 8,400 per apprentice. (Kinzer, 1993).
  - $ 10,000 per apprentice (Hamilton, 1993, pg12).

- American Apprenticeship System
  - $ 20,000 per apprentice annually at Bosch (Filipczak, 1992)
  - $ 7,300 per apprentice annually Jobs for the Future in Filipczak

- Youth Apprenticeship

$ 2,500 to $5,000, most firms reporting approx. $3,500 (US DOL, 1992).
$ 3,500 for first year, and $5,200 for second year students (Goldberger, 1993).
$ 7,000 in 1989 to train minority youth in Boston (Lynch, 1992).
$ 1,384 per apprentice in late 1970s (Lehrmen and Pouncy, 1990)

Large employers typically financed first-year student salaries using general corporate funds, holding individual departments accountable for wages once students were trained and released into the workforce. This tended to reduce resistance to school partnerships within the organization, and helped convince people that program participation was a good investment. Smaller employers tended to hold individual department directly responsible for student wages from program inception (Joyce and Byrne, 1993)[4]. In some cases employers established non-profit organizations though which they funneled funding for student wages.

In addition to the direct wage costs, firms also invested significant resources in training, supervising, and mentoring students. The total cost of these activities likely varies widely among employers, and is a function of a number of variables, including: whether training terminates in skill certification; type of industry in which students work; firms' commitment to student training; task requirements of job placement, and level of supervisor involvement with student. Surveys of firms participating in YAP revealed that in some cases, staff time allocated to supervision and structured training was more expensive than students wages (Hershey and Silverberg, 1993). Evidence to assess student training costs is scant, in part because few employers have attempted comprehensive benefit cost-analyses. Average time allocated to supervising secondary co-op students has been estimated at 11.4 hours per week, compared with 10.7 hours for regular employees (Deane, Frankel, and Cohen, 1978). Hospital coordinators in the Project ProTech Youth Apprenticeship Project, in comparison, reported dedicating five to twenty-five hours per week overseeing student placements and coordinating programs with workplace activities (Goldfinger, 1993).

[4]Based on focus group meetings with 15 employers participating in youth apprenticeship programs

C. COST OF PROGRAM PARTICIPATION

1. Student contributions to organizational productivity may eventually offset their wage, training and supervisory costs; however, actual rates of return may vary as a function of industry placement, student experience, wage subsidies, and student attrition.

Based on a review of nine business-school partnerships serving secondary at-risk youth, McMullan and Snyder (1987) conclude that firms receive little direct or immediate benefit from participating in work-experience programs. This occurs because employer training and supervision costs more than offset any wage savings from hiring students, meaning that students are paid well above their marginal productivity. It is not clear that this finding generalizes to all programs and all students. Most students participating in Project Pro-Tech's Health Care program were found to offset their wage costs during the first six months of their work assignment, and all were found to be making substantial contributions to hospital productivity in the last two years of their apprenticeship (Goldberger, 1993). [Note: Since no attempt was made to quantify the overall rate of return for the program, it is impossible to determine if participating hospitals ever recouped their entire training investment.] Employers participating in other secondary STW programs were equally optimistic in their assessment of students' contribution to the firm. In the largest and most recent study of paid work-experience programs, nearly 96 percent of all firms reported at least breaking even on student participation (See Table below).

When considering the costs of employing these partnership students compared with the student' productivity, do you think:

Firm	N	PCT
Makes money	65	46.4
Loses money	6	4.3
Breaks about even	69	49.3
Don't know	1	—
Refused	1	—
No students employed	54	—
Total	196	100.0

Source: Wills and Lynn, forthcoming.

Employer cost savings may be generated by a number of factors. Although there is little empirical evidence to support the contention, it is likely that students gain valuable skills from on-the-job training, and over time learn enough to increase their productivity. Employers also benefit in that firms are exempted from paying federal unemployment insurance and do not need to offer fringe benefits, such as vacations, sick days, or health insurance (GAO, 1993). This reduces the loaded cost of students' salaries, meaning that even workers with lower productivity may still be profitable to the firm. To further increase employers' incentive to participate, some work-experience programs have been structured to make school districts the legal student employer (e.g., Youth Apprenticeship in Maine, Oakland Health and Bioscience Academy). This makes districts, and not employers, responsible for making students' worker compensation payments (Jobs for the Future, 1994).

Finally, firms may receive wage subsidies, targeted tax credits and outside financial assistance to help offset student salaries. Early evidence suggests that few employers currently benefit from such assistance. Of 142 participating firms, Wills and Lynn (forthcoming) discovered that only 3 percent reported receiving any wage subsidy ($3,260 in total), 6 percent any targeted tax credit ($200 in total), and 1 percent outside financial assistance ($20,000). Low participation may be indicative of employers lack of enthusiasm for such assistance. A survey of 241 firms participating in co-op and work experience programs revealed that employers highest priorities concerned student attitude and work motivation, and coordinator's activities and involvement. Financial issues, such as salary and tax credits, were listed as low on the continuum in order of importance (Winer and Kane, 1983). It is not clear whether employers' low interest in fiscal remuneration reflects firms desire to provide training to students, or whether students productivity is high enough to make this issue irrelevant.

Student attrition may serve as a significant disincentive to employer participation in STW programs. When placements are terminated before training is completed, employers may lose their investment without ever realizing an economic benefit. This may be particularly relevant because in many cases, more money is invested in earlier stages of training when greater supervision is required. Empirical reports suggest that student withdrawal rates can be significant. For example, a twenty-one year study of co-op attrition in the Lockheed-Georgia Company found that nearly 37 percent of entering postsecondary students failed to complete training. Reasons for termination included change in students' area of occupational concentration, loss of program eligibility due to falling grades, and

poor academic performance (Phillips, 1978). A recent study of the Project ProTech program provided remarkably similar findings. Nearly 39 percent of secondary students (34 of 88) either quit (9) or were terminated (25) in their first year of participation.

Reasons why students quit or were terminated from ProTech Health Care Youth Apprenticeship

Reason for Quitting	# Students:
Not interested in health care	3
Transferred schools	2
Dropped out of school	2
Time conflict	1
Personal / family reasons	1
Reason for Termination	
Poor school attendance and academic performance	10
Poor academic performance	5
Poor clinical site performance	4
Poor school and clinical site attendance	3
Poor clinical site attendance / performance	2
Incarcerated	1

Source: Goldberger, 1993

Perhaps the most significant finding from the ProTech study is that other than prior year grade point average, job placement quality was the most significant predictor of student termination. Placement in challenging high-quality jobs (e.g., clerical, technical, or patient care jobs) was found to significantly improve student retention. Goldberger (1993) suggests that such placements may have served as a strong motivator and confidence builder for students, and thus encouraged them to remain in the program. While this finding may be valid, the effect of selection bias on student placement remains unaddressed (i.e., were more motivated students placed in higher-quality jobs). More generally, the overall incidence of student creaming is an issue which has received relatively little attention in the STW literature. Specifically, if the most motivated, self-directed students are currently participating in STW programs, then to what extent will expanding training effect employers' economic return?

2. Employer involvement in STW programs can aid in affirmative action hiring and improve workplace environments without significant impact on customer relations.

Participation in work-experience programs can assist firms in achieving Equal Employment Opportunity hiring objectives. Asked why he was participating in a local career academy program, one employer responded with a two-word answer: "promotable minorities." While minority group members are often found in lower-level positions, few are able to move into management positions because most lack the knowledge and skills to supervise other workers (Stern, et. al., 1992). Vocational programs often provide employers with a large pool of trained individuals who meet affirmative action categories. For example, a 1976 survey of 70 co-op employers found that 28 percent of their eventual co-op hires were minority applicants, as compared with only 3 percent of hires recruited from among regular college students (Hayes, 1978). Similarly, Wooldridge (1976) found that one-half of co-op students hired as entry-level professionals by the Social Security Administration were members of minority groups.

Businesses may also benefit from student diversity found in STW programs. Hospital partners participating in Project ProTech anticipated using students to expand their workforce to better reflect their communities' cultural and ethnic background (Goldberger, 1993). Hospitals also reported that student diversity helped to increases staff cultural awareness and promote racial sensitivity, as one staff member explained:

> ProTech (participation) broke down stereotypes of what inner-city kids are all about. These kids have the same values and dreams as the rest of us.

Worker morale may also improve when students are introduced to the organization. Employers participating in YAP reported that providing workers with opportunities to mentor young students boosted performance levels and increased worker enthusiasm. Finding satisfaction in the accomplishments of their young apprentices, many mentors took greater pride in their own work (Joyce and Bryne, 1993). Similarly, Project ProTech hospital employees, typically surrounded by elderly patients near death, reportedly enjoyed the boundless enthusiasm and energy students brought to their work, and were pleased to be able to perform what they perceived as community service while they were at work (Goldberger, 1993)

Customer relations appears to be unaffected by student trainees in the workforce, although relatively little data exists to support this contention. One could hypothesize that firms might lose money if students were less facile in handling consumer problems, or if

business clients were put off by rapid employee turnover. Results from a survey of 250 co-op and 150 non-coop employers suggest that customer relations costs of co-op students are indistinguishable from that of regular employees. Nearly 77 percent of employers reported no significant effect of employing students, and less than 5 percent detected a negative impact (Deane, Frankel, and Cohen, 1978).

3. Legal regulations, and periodic fluctuations in the business cycle may reduce employers incentive to participate in STW programs; in addition, information assymetries may unnecessarily limit employer involvement.

A complex web of federal and state administrative regulations may reduce employer incentive to participate in secondary STW training programs. Currently, students under age 18 may not be employed in any occupation declared hazardous (e.g., power driven metal forming) by the U.S. Secretary of Labor. Successful placements may also be hampered by state restrictions on the number of hours youth may work. For example, the state of Wisconsin limits 16- and 17-year-olds to a maximum of four hours of employment on school days (Jobs for the Future, 1994). Securing insurance coverage for students may also present a significant problem: 45 percent of state co-op directors reported difficulty in arranging insurance coverage for students as a primary reason employers elected not to participate in job placement programs (GAO, 1993). Child labor restrictions obviously present less of an obstacle at the postsecondary level.

Nearly all firms are vulnerable to fluctuations in the business climate. Commenting on his experience with a small-scale youth apprenticeship project, Hamilton (1993) notes that when business is bad, few employers have the resources or motivation to hire students. The corollary need not apply: when business is good, firms often report that their workers are too busy to train students. Even when the corporate will exists, long-term job placement commitments may be difficult to honor due to the dynamic nature of the marketplace. For example, reorganization and corporate downsizing forced Sears to withdraw a promise to provide extensive work-based training to students enrolled at a nearby area vocational technical center. As a substitute, students were offered a three-week, unpaid after-school internship. Bank of America encountered similar circumstances when it was forced to curtail training for 28 students after hiring freezes related to a corporate merger restricted the Bank's ability to deliver on its commitment (Hershey and Silverberg, 1993).

Lack of information may also act as a significant disincentive to employers. Over one half of state co-op directors reported employers were unaware of work experience

programs in their region or unsure of how to initiate program participation (GAO, 1993). Firms may also fail to participate because they lack the administrative structure or knowledge to organize a program. Employers attending focus group meetings sponsored by the National Association of Business emphasized the importance of intermediate organizations in helping them develop their youth apprenticeship programs. Assets brought by third-party involvement included: convening groups, managing programs, identifying job slots, developing curricula, and providing a governance structure (Joyce and Byrne, 1993).

II. SCHOOL and STUDENT ISSUES

1. STW programs may reduce institutional dropout and attrition rates, and improve instructional quality and relevance.

Youth enrolled in work-experience programs appear generally satisfied with the training they receive. Of co-op students surveyed for High School and Beyond 57 percent reported enjoying work more than school, and 25 percent considered co-op more important than their classroom instruction (GAO, 91). Positive characteristics of work experience programs often cited by students include: support for professional and personal growth, identification of career pathways, provision of intrinsically interesting work, and overlap between personal interests and professional goals (Page, et al., 1981; Stern, 1992). Perhaps because work-experience programs make schooling more relevant to their own lives, employed students are more likely to remain in school.

Secondary students enrolled in career academy programs exhibited relatively lower dropout rates than their general track cohort. Reller (1985) noted a dropout rate of only 6 percent for seniors enrolled in California's two Peninsula Academies, compared to 21 percent from comparison groups. Reduced dropout rates were also observed for students enrolled in California academy replications, with three-year dropout rates 50 percent lower for academy youth (Dayton, et al., 1989). While other factors beside work-experience doubtless influenced student attrition (e.g., school-within-a-school structure, integrated curriculum, career focus), work experiences and employer mentoring programs greatly contributed to the lower dropout rates observed. Although dropout data were not available

for students participating in the Project ProTech Health Care project, mean attendance rates for apprenticeship students were significantly higher (at the 95 percent level of confidence) than for non-participants (89% to 85%) (Goldberger, 1993).

Participation in STW programs can also help students define career expectations and increase their likelihood of future employment. More than one-half (57 percent) of students participating in Washington State's College Work Study program reported that their work-study experience had influenced their career goal. Impacts most often cited included helping identify positive and negatives aspects of a career in that field, and cementing a chosen career direction. Moreover, more than 70 percent of work study students reported their experience as "very helpful" or "somewhat helpful" in locating a job following graduation (MPR Associates and Franz Research, 1991).

Students participating in work-experience programs often harness their training to find immediate employment upon graduation. According to a study by the GAO (1991), one-half of all secondary and postsecondary co-op student reported receiving permanent job offers from their co-op employer, with several high schools reporting nearly every student receiving an offer (GAO, 1991). Students are not confined to working in their initial work-experience placement; skills acquired from one employer may often be used to springboard to new, permanent positions. Moreover, since firms participating in school collaborations are often among the "blue-chip" companies in the local economy, students may use their workplace contacts to network with employers who would not otherwise consider them for employment (P/PV, 1987).

Faculty-employer associations may also improve the quality and relevance of classroom instruction. Teachers in participating schools report higher morale levels, in part because industry collaborations permit instructors to meet professionals outside the school, reduce class sizes to more manageable levels, and serve as student mentors and role models. Worksite placements also enable students to work with more up-to-date equipment than the school owns or could ever hope to purchase, offering students more meaningful job training experiences (P/PV, 1987). In some cases, surplus equipment may also be donated to the school where it is used to supplement classroom instruction.

2. Administrative barriers and fiscal constraints may discourage schools from STW participation.

Scheduling conflicts may make it difficult for schools to release students for work. This problem is particularly relevant for smaller schools, which often have less flexibility in scheduling courses. Secondary schools must also overcome additional administrative barriers, which include ensuring that all employed students remain in good academic standing, all seniors fulfill minimum state graduation requirements, and all students have reliable work-site transportation. Some schools have circumvented transportation difficulties by requiring that students provide their own transportation to and from the workplace, or by providing students with monthly public transit passes. In other cases schools accept the responsibility of busing students to work, which can add significant transportation and insurance costs to participation (JJF, 1994).

Schools may also face significant costs if they are to develop structured training programs and monitor student worksite placements. To illustrate the costs which may occur, consider that in a little over a nine month period, Sears invested over 2.5 person-years of staff time designing only the first stage of an extensive appliance repair technician curriculum for use in an area vocational technical center (Hershey and Silverberg, 1993). Similarly, Project ProTech administrators spent $400,000 for program development, with much of this money earmarked for curriculum design and program coordinator salaries (Goldberger, 1993). While schools may be able to initiate business partnerships for considerably less investment, failure to budget sufficient resources to support and monitor students in job placements may eventually compromise program services (USDOL, 1992)

Section 2

Types of Involvement Available to Employers

Business involvement in vocational training may take many forms. Indirect participation occurs when firms donate resources and technical assistance to improve the quality and efficiency of school-based instruction. Associations are typically of limited duration and offer minimal employer-student contact. Direct participation models offer relatively long-term more tangible industry participation. Here firms take a more proactive instructional role, assigning staff to supervise and train students, and providing paid or unpaid job placements.

The following section presents a general overview of successful models of indirect and direct employer participation in vocational training. Description is somewhat complicated, however, because elements of each model are not mutually exclusive. In order to satisfy school requests and organizational capacity, employers often borrow a mix of components from different models, or use selected elements from one. As such, though it is theoretically possible to outline distinct models of employer involvement, as is done here, in practice considerable overlapping may occur.

I. Indirect Employer Participation

Indirect assistance is by far the most widespread form of interaction between business and schools. These so-called "Helping-Hand" relationships are characterized by business provision of tangible goods and services to supplement school-based instruction. It is estimated that in 1991 nearly 73,000 business-school partnerships were in operation, with small firms sponsoring roughly 40 percent of all programs (Timpane and McNeill, 1991). Types of assistance include:

Industry Advisory Boards

Business executives volunteer as consultants to assist educators in improving vocational training and administration. Advisory board services include:

- Advice on program budgeting and planning
- Recommendation and approval of vocational teacher hiring
- Suggestions for future equipment purchase
- Proposals for future program development

Curriculum Renewal Committees

Industry representatives work with educators to revise or develop vocational curricula more representative of contemporary private-sector technology, standards and practices. An estimated 48 percent of schools nationwide reported assistance from businesses and other organizations in the 1990-91 school year.

Compacts and "Business Roundtables"

Top executives of major corporations convene to influence state and local public policy and to foster system-wide school improvement. Efforts range from coordinating resources in support of ongoing school reform to exerting external political pressure to drive reform efforts..

Adopt-A-School

Firms channel resources and technical assistance to a single school with whom they develop a tight connection. Types of involvement which occur include:

- Donation of equipment and supplies
- Funding awards for outstanding student performance
- Establishing scholarship funds
- Loaning executives to serve as classroom instructors and consultants
- Teaching a class or unit on industry specialization
- Speaking at career day or a school assembly
- Offering workplace visits to students
- Advising school on student workplace skills needs
- Establishing extracurricular club
- Displaying student work at the workplace

Professional Development

- Unstructured - Educators may be invited to the work-site to attend professional development workshops (e.g., stress management seminars for workers), talk with workers, or observe state-of-the-art equipment in operation.

- Structured - Educators are hired for summer internships in which they may receive one-on-one instruction in specific job skills.

Direct Employer Participation

Work-based supervision and training of students characterize direct assistance models of vocational instruction. While these models often incorporate elements of indirect employer participation, what distinguishes these approaches is localized instruction at the work site. Different models include:

Work-Experience Programs

- Industry Internship

  Unpaid work experience which parallels classroom instruction. Students typically spend four days in the classroom and one on the job. Although training does not terminate in certification, students receive academic credit for their work.

- College Work-Study

  Paid, part-time employment available to economically disadvantaged postsecondary students. Wages are subsidized by the local school, state, or federal government. Certification or academic credit is seldom provided, and students are typically restricted to work in the public or non-profit private agencies. In 1989-90, approximately 9 percent of all full-time and 0.7 percent of part-time undergraduates received some form of work-study grant.

- Tech-Prep

  Articulation of last two years of high school with first two years of community college occupational training. Firms provide job placement and summer employment for participating students. Programs lead to associate degree or certification in a career field. A 1990 survey identified 120 Tech Prep programs in 33 states; estimates suggest between 80,000 and 90,000 participants (Osterman and Iannozzi, 1993)

- Career Academies

  Public high schools offering integrated academic and vocational education centered on a specific career theme. Work-based employment is a core component of training, with employers assisting in program governance, serving as classroom resources, and providing summer and (in some academies) part-time jobs during the academic year. Approximately 150 academies enrolling nearly 9,000 students are currently operational (Stern et.al, 1992).

Job Shadowing

Arrangements in which students travel to the worksite and spend part of their day observing and talking with administrative or production-line employees. Over time, student may rotate thought a variety of departments to obtain a holistic view of the organization.

Mentoring

Business employees act as one-on-one role model for student. Mentors may be assigned by the company, or selected by students from a pool of interested employees. Typical activities include:

- Touring the company and becoming acquainted with work routines
- Attending special company activities such as presentations and picnics
- Discussing potential careers in the students career field
- Tutoring students in subjects in which they have difficulty
- Coaching students for job interviews
- Advising students of workplace norms, including dress, reliability, maturity
- Discuss college plans

Several thousand such efforts are currently underway (Timpane and McNeill, 1991).

Work-Based Training

- School-to-Apprenticeship

  Programs designed to enable students to become registered apprentices while they complete their high school training. Students combine schooling with work-site placements to prepare students for apprenticeship training upon graduation. Begun in 1970s as a pilot program at eight sites throughout the country, the program has never expanded beyond the pilot stage. In 1990 approximately 1,500 students high school students participated in training.

- Cooperative Education

  Students typically spend mornings in academic classes and afternoons in paid employment which provides high school credit. On-the-job training and work credentials may be offered. An estimated 430,000 students (8 percent of students) participate in co-op programs annually.

- Youth Apprenticeship

  Structured, paid training which integrates classroom instruction and on-the-job training. Students spend approximately 10-20 hours per week training at the site, and receive classroom instruction centered around a career major. Programs are intended to terminate in skill certification. Still in their infancy with only 30 to 40 sites currently operating, estimates of program participation range from 1,000 to 3,500 students nationwide (Reisner and Adelman, 1993).

Section 3

Policies to support STW programs

This final section derives a set of feasible market-based policies to foster employer participation in STW transition programs. To help motivate the discussion, analysis draws on basic economic theory, as well as elements of successful European job training programs. Due to the considerable cultural, economic and political differences which distinguish European systems from our own, emphasis is placed on extracting promising cost-effective strategies which may be adapted for use in the American marketplace. Recognizing the potential for employer "poaching" of trained workers, analysis will address political and market solutions to the free rider problem.

This discussion is premised on a number of assumptions. First, it assumes that employer-sponsored training will resemble that described in the proposed School-to-Work Transition Act of 1993. Specifically, it assumes that work-based learning will offer students some form of paid, structured or semi-structured training in a broad variety of industry elements. Moreover, it assumes that school-based learning, which includes career exploration and specialization, will terminate in some form of nationally recognized skill certificate. Finally, it assumes employers will be at least indifferent to hiring and training student workers when the marginal cost of training students is less than or equal to students' contribution to the firm.

Models of Employer Training

Human capital theory suggests that when worker mobility is constrained, firms have incentive to offer and bear the full cost of general and specific forms of training. Investment is motivated, in part, because the total benefit of training may be recouped by the firm over the lifetime of a stationary worker (Becker, 1975). This model comes close to describing the rationale for youth training in Japan, where young workers typically remain with their first employer for much of their working life. Student hiring begins in the last year of high school, when Japanese business representatives, using an extensive network of teacher and school contacts, identify and recruit academically promising non-college bound students. In exchange for a job, students are provided first-rate vocational training at firm expense. By

identifying students with the most promising capacity to learn, as measured by grades and teacher impressions, Japanese firms are able to produce workers who are easily retrained to keep pace with technologic innovation (Rosenbaum and Kariya, 1989).

Aside from its emphasis on business-school linkages, there is relatively little about the Japanese system which could be transferred to America. Few American firms would be willing to offer lifetime employment to students in training, nor is it likely that many youth would be receptive to the offer. Moreover, only one-third of Japanese students ever find employers willing to fund their training: the remaining two-thirds rely on a weak backup of state-run vocational schools to obtain job skills. It is doubtful whether an American system of training based on the Japanese model could ever provide enough slots to make a comprehensive STW transition program feasible (Marshal and Tucker, 1992). Close business-school ties may offer some advantages, however, such as placing higher value on academic achievement, and lowering employers need to actively screen applicants. If American educators were to control student access to work positions, it is possible a STW initiative could motivate some work-bound youth to improve their school performance.

If the assumption of worker mobility is relaxed, then in the absence of outside regulation or subsidy, employers have little incentive to sponsor general skill training. Low levels of firm-provided training may be traced to fears of employee poaching, in which experienced workers are lured from their original firm, as well as to the potentially high net cost of supplying training. This latter model more closely describes the situation in many European countries such as Germany, Sweden, and Denmark, where workers are unlikely to spend their entire career with a single employer. Interestingly, although mobility reduces the likelihood of employers recouping their training investment, many European firms participate in apprenticeship and other youth training programs. This occurs, in part because each country has adopted cost-effective, market-based policies to encourage employer involvement. The following section assess these strategies, and suggests how they might be tailored to support a comprehensive American STW initiative.

1. Structure programs to provide employers with incentives to help students complete training[5]

When STW programs are improperly structured, employers may actually have incentive to discourage competent students from completing training. Evidence to support

---

[5]Subsequent discussions of England's YTS experiment draw from an excellent description of program outcomes outlined in Cappelli, 1993.

this unexpected result comes from Great Britain, which in the early 1980s attempted to establish a nationwide job training program modeled on the German-apprenticeship system. British employers participating in the newly adopted Youth Training Scheme (YTS) found that it was often easier to hire students out of the program and into full-time work than risk losing them to outside competitors. Since employers knew students' work capacity prior to hiring, whether or not a student completed training was irrelevant. Moreover, YTS credentials soon became a negative signal to employers, because training completion implied that the sponsoring firm had some reason not to hire the student. Other drawbacks included a tendency for employers to reduce training opportunities in order to pocket subsidies (which were paid prior to training), and a failure to monitor training to see that minimum program skill training standards were met.

Cappelli (1993) proposes that linking employer subsidies to student credentialing may motivate employers to provide comprehensive training. While employers might still hire students directly into training, such action would reduce benefits to employers (who would lose the benefit of their subsidy) and students (who would lose their opportunity to obtain certification). Alternative suggests include connecting employer subsidies to student progress in academic or occupational coursework, or to the length of time that the worker and student remain together. Tying subsidy packages to student progress, however, may lead to workforce churning and creaming if employers seek to identify and work with only the most promising students.

2. Create a national infrastructure to support planning and oversight of training partnerships[6]

All three European countries have evolved some form of national governance system to monitor and improve the quality of employer-sponsored youth training. Systems hinge on a close relationship among federal and state government, employers, and unions, who work together to set uniform training standards. Program oversight in all countries resides at the federal level, where government is responsible for providing official recognition of training standards. The real work of program administration and monitoring, however, occurs at the local level, where each country has developed its own unique method for program maintenance.

---

[6]This section draws from the Council of Chief State School Officers 1991 study of European training systems.

Germany, for example, has evolved a centralized local governance system based on industry guilds. All German firms belong to either the 'Chamber of Trade and Craft' or the 'Chamber of Industry and Commerce,' which are national organizations representing both employers and employees. Chambers provide a number of training related services, including: advising government and employers on training standards, supervising the quality of employer training programs, and administering exams to student apprentices. Chambers also organize and run inter-firm vocational training centers to provide supplemental training not offered by employers. Program administration in Sweden and Denmark is considerably less centralized, and relies on the input of trade and vocational education committees composed of local employers, labor, and educators.

Although no parallel training and evaluation system currently exists in America, a number of states have organizations which could potentially provide oversight for a STW initiative. For example, the State of California is one of 41 states to offer state-financed training assistance to employers. A portion of the state's annual payroll tax is used to fund the Employment Training Panel (ETP), an independent agency which assists both the unemployed, as well as the employed in need of retraining (NCRVE, 1993). The objective of ETP services is to upgrade skills of workers who would otherwise be displaced, and hence eligible for state unemployment benefits. Building off existing state training programs to administer a STW initiative could be more efficient than creating new state run bureaucracies. Such action could also be cost-effective if student participation reduced future unemployment claims. Empirical data suggests that significant savings may be possible. Nearly 10 percent of American students are unemployed one year after leaving their secondary institution, a rate considerably higher than in countries such as Germany, where comparable unemployment rates hover at less than 4 percent of all youth (Buechtemann, 1993).

In lieu of state efforts, the federal government could elect to construct an administrative infrastructure to support a comprehensive STW initiative. Building off a Clinton Administration policy paper, Finegold (1993) suggests using federal matching funds to create a national network of Manufacturing Extension Centers. Intended to provide technical services which would be prohibitively expensive for individual firms (e.g., export marketing, technology diffusion), these centers could also be used to provide start-up and on-going technical assistance to schools and employers, and in some cases, offer structured instruction for employers unable to train students in a broad range of skills. When more cost-effective, off-the-job training could also be subcontracted to local colleges or private

training providers. Extension centers have proven successful in many Latin American countries, where in addition to providing global skills training, they help reduce the distance between employers and schools (Moura Castro and Cabral De Andrade, 1990).

Existing federal programs may also be used to fund the development of local employer, labor, and educational councils. Moore and Waldman (1993) have identified at least twenty federal programs which offer financial assistance to youth aged 14 to 21. Coordinating federal resources among these programs could offer economies of scale, particularly if resources were concentrated within specific agencies to deliver technical assistance. Use of certain federal funds, such as JTPA, Perkins, Tech-Prep, National Apprenticeship, Chapter I, Chapter II, and Eisenhower Math-Science, would be particularly appropriate because these programs tend to cede localities significant discretion over fund use. Spending restrictions could narrow the scope of such undertakings, however, because federal regulations often earmark resources for selected groups. For example, the Carl Perkins and JTPA Acts specifically target money to disadvantaged students; and as such, could not be used to fund STW programs which deliver services to all youth (Choy, 1993).

The objective of planning resource models is to reduce employer costs for program planning and maintenance, and in so doing, increase the likelihood of economic benefit from program participation. While these policies may help lower the cost of firm participation, not all firms will derive sufficient incentive to offer training. On-going costs will likely vary with firm size, industry of participation, student job placement, and training intensity and scope. As such, employers may need additional financial incentives to encourage program involvement. This next class of models are designed to increase profitability of STW transition programs by diminishing the long-run cost of student training.

3. Adopt sub-minimum or reduced student training wages in conjunction with nationally recognized skill certification

Human capital theory suggests that employers have incentive to offer general skills training only if they do not have to bear any of the cost. Workers are typically unwilling to accept reduced wages to finance this training because they have little guarantee that employers will hire them upon program completion, and because once trained they have no means of signaling their new skill holdings to employers. Nearly all European countries have found means of circumventing these problems by offering graduates of training programs nationally recognized skill mastery certificates. In some countries, students have

significant incentive to forego short-term income opportunities for more lucrative industry certification. Analysis of German labor market data suggest that unskilled German workers suffer a marked decline in their relative wage over time, and exhibit relatively higher rates of unemployment (Buechtemann, et al. 1993). Similar results hold for Sweden, where non-certificated workers are often paid significantly less than trained workers. For example, unskilled laborers in the building trades may be paid no more than 80 percent of the wage of trained workers (CSSO, 1991).

America can clearly benefit by incorporating lessons offered by European employers. Under current labor law, American employers must pay most workers at least minimum wage. Student workers may be exempted from minimum wage requirements, however, if work is considered part of students' educational program. A number of employers participating in co-op and youth apprenticeship have taken advantage of this loophole to offer training stipends which pay less than minimum wage when averaged over total student hours worked. Although more research has yet to be performed, it appears that students are willing to accept sub-minimum wages *even in the absence* of skill certification. Motivations for this action are unclear, and may be traced to students' interest in the skill training area, belief that training offers valuable skills, or wish to be out of the classroom.

Developing nationally recognized skill documentation is imperative if large numbers of students are to accept sub-minimum or reduced training wages. Lack of skill documentation and program continuity across, and often within states, currently prevents students from signaling potential employers of their skill holdings. This acts as a significant disincentive for student investment because youth may realize a higher rate of return from higher paying unskilled employment. Portable, uniform, nationally recognized certificates, similar to that offered in Germany, could help motivate youth to accept the opportunity cost of training. Certification will only be successful, however, if business perceives skill documentation to provide a useful measure of applicants' skill holdings, and remunerates holders accordingly. The value business attaches to certification may hinge, in part, upon the perceived difficulty of skill testing, and the importance placed on monitoring student training placements. Early evaluations of Britain's YTS program suggest that certificates did not figure in employers hiring decisions: 59 percent of employers were either unaware or did not ask to see graduates' skill mastery certificate during the first year of program operation (Sako and Dore, 1986).

While offering training wages could serve as a significant motivator for employer participation, doing so could also invite potential abuses which would undermine certificate

value. Critiques of the German model, for instance, suggest that many smaller employers take advantage of apprentices to capitalize on inexpensive labor. Since firms may pay apprentices lower training wages, many smaller companies simply hire students for cleaning or maintenance duties (Harf, 1993). While structuring and communicating clear training standards to employers, and monitoring firm performances may act to reduce shirking behavior, some level of cheating and specific skill training may be unavoidable. Agreement upon uniform national standards could increase employer incentives to participate, both because standard dissemination could assist employers in developing training activities, and because skill certification would convey some recognized level of competence.

4. Offer direct wage or indirect tax subsidies to offset training costs

Nearly all European firms receive direct wage subsidies to offset their student training costs. Fiscal resources are generated by payroll levies charged to all employers regardless of whether or not they offer training. This system encourages firm participation because although all employers pay into a training fund, only those offering training receive some benefit. The impact of such taxes may depend upon a number of factors, including the level of subsidy and the cost of student training. In Denmark, for instance, smaller companies often train more apprentices than they have openings, in part because the combination of low student wages and direct subsidies make training economical. Experiments with a French training tax, however, suggest the opposite effect. Lynch (1993b) found that while payroll taxes increased overall levels of training, employees in small firms, and unskilled workers in all firms received little company provided training. Instead, minimum training requirements were used to justify trips for senior business executives to the French Pacific ostensibly to learn English (Finegold and Soskice, 1988).

Developing an American analog to the European training levy is a subject of considerable debate. Recent proposals call for the introduction of an employer payroll tax, in which firms failing to spend an amount equal to at least 1.5 percent of their annual payroll would be penalized the difference. While such a tax could help reduce employer poaching, since all firms benefiting from training would pay a portion of the cost, it is not clear that this increased spending would necessarily be directed toward youth training programs. Moreover, administering and enforcing such a tax could be difficult and expensive. Assuming a funding source could be identified, it is still questionable whether direct wage subsidies would motivate many American employers to participate. Experiments conducted by the Youth Entitlement Demonstration project during the 1970s

suggest that few employers believed youth contribute enough to offset their supervision and training costs. Only 10 percent of employers expressed willingness to participate when asked if they would pay 25 percent of students' wages, and this rate dropped to 5 percent when asked to pay 50 percent. Interestingly, less than one-fifth (18 percent) of employers were willing to take on demonstration youth even when the entire amount of the students wage was subsidized (Ball et al., 1981). This finding has been criticized by some researchers, however, because businesses already participating in the project were excluded, and because selected employers were only offered a short time frame in which to provide job development (Bailey and Merritt, 1993).

An attempt at structuring wage subsidies for youth employers is currently being undertaken in Oregon. Using state lottery funds, firms participating in youth apprenticeship programs are being offered up to $2,500 to hire student workers. Discussions with state personnel suggest that while grants are successful in stimulating firm involvement, employer participation at the margin is often motivated by financial rather than student concerns. This observation is consistent with reports in the literature, which suggest that subsidies may significantly alter firm behavior. Employers participating in England's YTS, for example, reported substituting student trainees for existing training spots as well as full-time permanent positions (deadweight loss). While this effect was small when the economy was in expansion during the mid-eighties—employers reported eliminating only 9 percent of training and 8 percent of full-time positions—losses were more substantial during the recession near the end of the decade, when for every 100 YTS positions added, 71 training and 9 full-time positions were eliminated. Latter reports are confounded, however, by the fact that YTS became a two-year program soon after development, making it difficult for employers to create new YTS positions without substituting other positions (Sako and Dore, 1986; Begg et al., 1991 in Cappelli, 1993).

Indirect subsidy programs include the use of government tax credits and employer expensing of training to reduce employer participation costs. While programs such as these may encourage employer participation, they are not without drawbacks. Government subsidy programs can simply supplant existing private-sector training or shift the cost of poaching from the firm to the public, unless steps are taken to regulate firms' behavior. Permitting employers to write-off training expenses may also lead employers to overstate the value of their contribution. While capping per student spending deductions could set an outer limit on firm expensing, such action would also serve as a disincentive for employers to invest more time in training than the maximum amount which they are allowed to deduct.

Conclusion

A review of the business, economic, and educational literature provides little insight into the economic incentives for employers to participate in a STW initiative. Analysis is hampered by the absence of a coherent empirical literature, and the generally poor and inconsistent quality of existing research. Although conclusive quantitative data is lacking, there is general agreement that STW programs may provide employers with some economic benefits. These include:

- Positive public relations and name recognition
- Reduced costs of identifying and screening high productivity workers
- Increased profits from hiring students

Program startup and maintenance can be expensive, however, and firms may incur significant costs from program participation. Although it is impossible at this time to more than qualify the actual benefits and costs of firm participation, lack of evidence should not be interpreted as an assessment of merit. Employer-sponsored training has been used for centuries in many European countries to prepare youth for labor market entry. Analysis of successful international models suggest a number of market-based strategies which may be adapted for use in the American marketplace. Incentives include:

- *Structuring programs to provide incentives for employers to train*
  Past experience suggests that firms need incentives to offer meaningful student training. Linking employer subsidies to program completion (or alternatively continued student progress) could motivate employers to provide more comprehensive training.

- *Creating a national infrastructure to support planning and oversight of training partnerships*
  System success hinges on a close relationship among government, business, and labor. Training models which incorporate business input, provide technical assistance, and maintain program integrity may reduce the cost of firm involvement, and in so doing, boost employers' incentive to participate.

- *Adopting reduced student training wages in conjunction with skill certification*
  Employer training and supervision costs often more than offset any student contribution to firm productivity. Encouraging students to accept sub-minimum or reduced training wages can reduce employer training costs, thereby increasing employers incentive to offer positions. Students' willingness to accept reduced wages will hinge on business recognition and remuneration of skill mastery certificates.

- *Offering direct wage or indirect tax subsidies to employers*
  Federal subsidies to business can also reduce employer wage and training costs. Resources may be generated directly by imposing a federal payroll tax on employers, or indirectly via tax credits or tax deductions. Direct payroll taxes, although politically unpopular, specifically address the poaching issue by making all firms finance training

Success or failure of a long-term, nation-wide STW initiative will likely be determined by bottom line issues. If student contributions to organizational productivity equal or offset their wage, training, and supervision costs, then work-based programs will likely continue their spread throughout the business community. Determinations of economic returns, however, may vary as a function of industry, student experience, wage subsidies and student attrition. Continued research to quantify the benefits and costs of employer-sponsored training, as well as to identify procedures for program planning and oversight, will be imperative if meaningful employer participation is to occur.

Bibliography

Bailey, T. 1993. "Can Youth Apprenticeship Thrive in the United States?" *Educational Researcher* 22(3): 4-10.

Bailey, T., Merritt, D. March 1993. *The School-To-Work Transition and Youth Apprenticeship: Lessons from the U.S. Experience.* Manpower Demonstration Research Corporation.

Becker, G.S. 1975. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education.* New York: Columbia University Press.

Begg, I.G., Blake, A.P., Deakin, B.M. June 1991. "YTS and the Labour Market." *British Journal of Industrial Relations* 29(2): 223-236.

Berryman, S.E. 1992. "Certification of Work Competencies." In Rosenbaum, J.E. et al. *Youth apprenticeship in America: Guidelines for building an effective system.* Washington, D.C.: William T. Grant Foundation Commission on Youth and America's Future, 1992.

Buechtemann, C.F., Schupp, J., Soloff, D. 1993. "Roads to Work: School-To-Work Transition Patterns in Germany and the United States. *Industrial Relations Journal* 24(2): 97-111.

Cappelli, P. 1993. *British Lessons for School-to-Work Transition Policy in the U.S.* National Center on the Educational Quality of the Workforce, Working Paper WP19. Philadelphia: Trustees of the University of Pennsylvania.

Carnevale, A.P. 1990. *America and the New Economy.* American Society for Training and Development, Alexandria, Va., and U.S. Department of Labor, Washington, D.C.

Choy, S.P. 1993. *School-To-Work Opportunities: Issues in State and Local Governance.* Berkeley: MPR Associates, Inc.

Council of Chief State School Officers. 1991. *European Lessons from School and the Workplace.* Washington, D.C.: CCSSO Resource Center.

Dayton, C., Weisberg, A., Stern, D. 1989. *California Partnership Academies, 1987-88 Evaluation Report.* Berkeley: Policy Analysis for California Education, University of California.

Deakin, B.M., Pratten, D.F. 1985. "Economic Effects of the YTS." *Employment Gazette* 95: 491-497.

Deane, R.T., Frankel, S., Cohen, A.J. 1978. "An Analysis of Co-op Student Employer Costs and Benefits." *Journal of Cooperative Education* 14(2): 5-53.

DeParle, J. 1993. "Clinton to Weigh Payments to Spur Hiring of the Poor." *The New York Times*, November 28(49,529): A1, col. 6.

Diaforli, L.V.P. 1981. "The Benefits of Cooperative Education Internship Programs to Industry and the Academic Community." *Journal of Cooperative Education* 17(1): 73-77.

Dolton, P.J. September 1993. "The Economics of Youth Training in Britain. *The Economic Journal* 103: 1261-78.

Dorfman, R., Steiner, P.O. December 1954. "Optimal Advertising and Optimal Quality." *American Economic Review 44*: 826-36.

Dowling, M.J., Albrecht, K.O. November-December 1991. "Technical Workers and Competitive Advantage: What We Can Learn from the Germans." *Business Horizons*, pp 68-75.

Eck, A. October 1993. "Job-Related Education and Training: Their Impact on Earnings." *Monthly Labor Review*, 21-38.

Ehrlich, D.J. 1978. "Employer Assessment of a Cooperative Education Program." *Journal of Cooperative Education* 14(2): 74-87.

Employment Gazette. August 1985. "Survey of YTS Providers." *Employment Gazette* 93(8): 307-312.

EQW Washington Public Policy. September 1993. "What Can the United States Really Learn from the German Experience with Labor Market Initiatives?" *An EQW Washington Public Policy Seminar with Peter Harf.* Personal communication.

Filipszak, B. April 1992. Apprenticeships from High School to High Skills." *Training Magazine:* 23-29.

Finegold, D. March 1993. "Making Apprenticeship Work." *RAND Issue Paper*. 1: 1-6.

Finegold, D., Soskice, D. 1988. "The Failure of Training in Britain: Analysis and Prescription." *Oxford Review of Economic Policy* 4(3): 21-53.

Ganzglass, E., Heidkamp, M. date unknown. *State Strategies to Train a Competitive Workforce: The Emerging Role of State-Funded Job Training Programs*. Center for Policy Research, National Governors' Association.

Goldberger, S. 1993. *Creating an American-style Youth Apprenticeship Program: A Formative Evaluation of Project ProTech*. Paper prepared for the Boston Private Industry Council. Cambridge: Jobs for the Future.

Goldberger, S., Kazis, R., O'Flanagan, M.K. 1993. *Learning Through Work: Designing and Implementing Quality Worksite Learning for High School Students*. Paper prepared by Jobs for the Future: Manpower Demonstration Research Corporation.

Goodwin, D. 1993. *Improving Transitions Between School and Work: Promising Approaches to Secondary and Postsecondary Education*. Paper prepared for the Office of Policy and Planning, Planning and Evaluation Services.

Grubb, W.N., Dickinson, T., Giordano, L., Kaplan, G. December 1992. *Betwixt and Between: Education, Skills, and Employment in Sub-Baccalaureate Labor Markets*. Berkeley: National Center for Research in Vocational Education.

Hamilton, S.F. 1990. *Apprenticeship for Adulthood: Preparing Youth for the Future*. New York: Free Press.

Hamilton, S.F. 1993. "Prospects for an American-style youth apprenticeship system," *Educational Researcher* 22(3): pp 11-16.

Hamilton, M.A., Hamilton, S.F. 1993. *Toward a Youth Apprenticeship System*. Cornell Youth and Work Program, Cornell University.

Hayes, R.A. 1978. "Employer Experience with the Work Performance of Cooperative Education Employees." *Journal of Cooperative Education* 14(2): 93-103.

Hayes, R.A., Travis, J.H. 1976. "Employer Experience with the Recruitment of Cooperative Education Employees: An Analysis of Costs and Benefits." *Journal of Cooperative Education* 8(1): 16-31.

Kolderie, T. 1987. "The Right Role for Business." *Harvard Business Review* 87(5): 56-62.

Lerman, R.I., Pouncy, H. Fall 1990. "The Compelling case for Youth Apprenticeship." *The Public Interest* 101: 62-77.

Lieb, B. and Stacey, N. 1992. *National education goals 5.*

Lund, L., McGuire, E.P. date unknown. "The Role of Business in Precollege Education." *Research Bulletin.* The Conference Board, Report Number 160.

Lynch, L.M. 1992. "Using Human Resources in Skill Formation: The Role of Training." In Kochan, T.A. and Useem, M. (Eds.) *Transforming Organizations.* New York: Oxford University Press.

Lynch, L.M. 1992. "Private-Sector Training and the Earnings of Young Workers." *The American Economic Review* 82(1): 299-312.

Lynch, L.M. September 1993. "The Economics of Youth Training in the United States." *The Economic Journal* 103: 1292-1302.

Lynch, L.M. 1993b. *Strategies for Workplace Training: Lessons from Abroad.* Washington, D.C.: Economic Policy Institute.

Maglen, L.R. December 1990. "Challenging the Human Capital Orthodoxy: The Education-Productivity Link Re-examined." *The Economic Record.*

Marshall, R., Tucker, M. 1992. *Thinking for a Living: Education and the Wealth of Nations.* New York: Basic Books.

McMullan, B.J., Snyder, P. 1987. *Allies in Education: Schools and Businesses Working Together for At-Risk Youth.* Philadelphia: Public/Private Ventures.

Moore, M.T., Waldman, Z. 1993. *Opportunities or Obstacles? A Map of Federal Legislation Related to the School-to-Work Initiative.* Paper submitted to the U.S. Department of Education, Office of Educational Research and Improvement. Washington, D.C.: Mathematica Policy Research, Inc.

Moskal, B.S. 1991. "Apprenticeships: Old Cure for New Labor Shortage?" *Industry Week* May 6: 30-35.

Moura Castro, C.M., Cabral De Andrade, A. 1990. "Supply and Demand Mismatches in Training: Can Anything Be Done?" *International Labour Review* 129(3): 349-369.

MPR Associates, Inc., J.D. Franz Research. October 1991. *Washington State Work Study: More than a Financial Aid Program.* Summary Report prepared for the Higher Education Coordinating Board, State of Washington.

National Center for Education Statistics. October, 1993. *Digest of Education Statistics.* Washington, D.C.: U.S. Government Printing Office.

National Center for Research in Vocational Education. October 1993. *Choosing Wisely for California: Targeting the Resources of the Employment Training Panel.* Berkeley: University of California

Navarro, P. 1988. "Why Do Corporations Give to Charity?" *Journal of Business* 61(1): 65-93.

Nielsen, R.P., Porter, R.C. 1983. "Employer Benefits and Cost Effectiveness of Cooperative Education Programs: A Review." *Journal of Cooperative Education,* 20(1): 11- 24.

Osterman, P. 1991. *"Is there a Problem with the Youth Labor Market and If So How Should We Fix it?"* Paper prepared for Joint Center for Political and Economic Studies project on "Poverty and Public Policy" funded by the Rockefeller and Russell Sage Foundations.

Osterman, P., Iannozzi, M. 1993. *Youth Apprenticeships and School-to-Work Transition: Current Knowledge and Legislative Strategy.* National Center on the Educational Quality of the Workforce, Working Paper WP14. Philadelphia: Trustees of the University of Pennsylvania.

Page, N.R., Wiseman, R., Crary, D.R. 1981. "Predicting Students' Benefits from Cooperative Education." *Journal of Cooperative Education* 18(2): 31-43.

Perloff, R., Sussna, E. 1978. "Toward an Evaluation of Cooperative Education: A Managerial Perspective." *Journal of Cooperative Education* 14(2): 54-73.

Phillips, J.J. 1978. "An Employer Evaluation of a Cooperative Education Program." *Journal of Cooperative Education* 14(2): 104-120.

Rabel, W.H. December 1990. "The Boost that Benefits Everyone." *Best's Review.*

Reisner, E., Adelman, N. 1993. Issues Related to the Possible Expansion of Youth Apprenticeship Programming. In house memorandum, Policy Studies Associates, Inc.

Reller, D.J. 1985. *The Peninsula Academies: Interim Evaluation Report, 1984-85 School Year*. Palo Alto, Calif.: American Institutes for Research in the Behavioral Sciences.

Roditi, H.F. March 16, 1992. "High Schools for Docile Workers." *The Nation*, pg. 340-343.

Rosenbaum, J.E. 1992. "Apprenticeship Learning: Principles for Connecting Schools and Work Places." In Rosenbaum, J.E. et al. *Youth Apprenticeship in America: Guidelines for Building an Effective System*. Washington, D.C.: William T. Grant Foundation Commission on Youth and America's Future, 1992.

Rosenbaum, J.E. 1992. "Guidelines for Effective School-Employer Linkages for Apprenticeship. In Rosenbaum, J.E. et al. *Youth Apprenticeship in America: Guidelines for Building an Effective System*. Washington, D.C.: William T. Grant Foundation Commission on Youth and America's Future, 1992.

Rosenbaum, J.E., Kariya, T. Winter 1989. "Japan Offers Way to Link School, Jobs." *Forum for Applied Research and Public Policy*. 4(4): 63-70.

Rowe, P.M. 1989. "Employer Characteristics in a Large-Scale Cooperative Education Program." *Journal of Cooperative Education* 24(1): 7-13.

Sako, M., Dore, R. June 1986. "How the Youth Training Scheme Helps Employers." *Employment Gazette*, pg. 195-204.

Steedman, H. September 1993. "The Economics of Youth Training in Germany. The *Economic Journal* 103: 1279-91.

Stern, D. 1992. "School-Based Work Experience." In Rosenbaum, J.E. et al. *Youth Apprenticeship in America: Guidelines for Building an Effective System*. Washington, D.C.: William T. Grant Foundation Commission on Youth and America's Future, 1992.

Stern, D., Raby, M., Dayton, C. 1992. *Career Academies: Partnerships for Reconstructing American High Schools*. San Francisco: Jossey-Bass Publishers.

Stern, D., Stone, J.R., Latting, J., Finkelstein, N., Martinez, G. 1992. *School to Work Transition and the Relevance of Vocational Education to Subsequent Employment*. Paper prepared for the National Assessment of Vocational Education.

Sugden, R. June 1982. "On the Economics of Philanthropy." *The Economic Journal* 92: 341-350.

Timpane, P.M., McNeill, L.M. 1993. *Business Impact on Education and Child Development Reform.* New York: Committee for Economic Development.

United States General Accounting Office 1993. *Vocational Education: Status in School Year 1990-91 and Early Signs of Change at Secondary Level.* Washington, D.C.: Government Printing Office, GAO/HRD-93-71.

United States Department of Labor 1992. *School-to-Work Connections: Formulas for Success.* Washington, D.C.: Government Printing Office.

United States General Accounting Office 1991. *Transition from School to Work: Linking Education and Worksite Training.* Washington, D.C.: Government Printing Office, GAO/HRD-91-105.

United States Department of Labor May 1990. *The School-to-Work Connection.* A report on the proceedings of "The Quality Connection: Linking Education and Work."

Vaughan, R.J. December 1989. Education, *Training and Labor Markets: Summary of Recent Research by Jacob Mincer.* New York: National Center on Education and the Economy.

Vaughan, R.J., Berryman, S.E. 1989. *Employer-Sponsored Training: Current Status, Future Possibilities.* Institute on Education and the Economy.

Wills, J.L., Lynn I. Forthcoming. "School-to-Work Transitions: Lessons on Recruiting and Sustaining Employer Involvement." YAP Survey Preliminary Codebook. Washington, D.C.: The Institute for Educational Leadership.

Wooldridge, R.L. 1976. "A Summary of Documented Employer Benefits from Cooperative Education." *Journal of Cooperative Education* 12(2): 5-18.

Weinstein, D., Wilson, J.W. 1985. "An Employer Description of a Model Employer Cooperative Education Program." *Journal of Cooperative Education* 20(1): 60-82.

Winer, E.N., Kane, S.M. 1983. "Employer Evaluation of High School Work Experience Programs." *Journal of Cooperative Education* 20(1): 35-44.

Wiseman, R.L., Page, N.R. 1984. "Predicting Employer's Benefits from Cooperative Education." *Journal of Cooperative Education* 20(1): 45-59.